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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/749,187

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Oleg M. Efimov

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/749,187	Applicant(s) EFIMOV, OLEG
	Examiner Sung H. Pak	Art Unit 2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10-19,21-29,32-38 and 40-42 is/are pending in the application.
- 4a) Of the above claim(s) 25-28 and 32-37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18,19,21-24,29,38 and 40-42 is/are allowed.
- 6) ☒ Claim(s) 1-8,10-12 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment filed 2/28/2007 has been entered. All pending claims have been carefully reconsidered in view of the amendment.

Pending claims are now amended to delete, *inter alia*, the claim limitation that was previously added by the claim amendment filed 9/13/2006 (i.e. "...said plurality of phase actuated switchers provide an equal phase adjustment of an input optical signal at all mirrors simultaneously to effect phase modulation of said input optical signal"). As such, the previous ground of rejection based on Madsen (US 2004/0234192 A1) is hereby withdrawn. However, because of this claim amendment, pending claims are now rejected over Madsen (US 6,956,991 B2), as presented before applicant's claim amendment of 9/13/2006. Since this change in the ground of rejection was necessitated by the amendment, this office action is made final.

Allowable Subject Matter

Claims 18-19, 21-24, 29, 38, 40-42 are allowed.

Claims 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: above mentioned claims now contain allowable subject matter discussed in the previous office

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action. Specifically, the claims now recite a method step of switching optical signals into long optical fiber of differential delay line or short optical fiber of differential delay line, wherein phase actuated switchers phase modulate the optical signal simultaneously adjusting phase of the input signal by an equal amount at plurality of phase actuated switchers (claim 38).

Alternatively, the pending claims now recite an optical fiber delay apparatus that comprises, *inter alia*, long and short optical fiber differential delay lines as mentioned above, connected to phase actuated switchers that have electronically controlled spatial light modulators with mirrors (claims 18, 24, 29), or electronically controlled piezoelectric-stretcher (claim 22). Such optical fiber differential delay devices have not been taught in any prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-12, 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Madsen (US 6,956,991 B2).

Madsen reference discloses an optical delay line comprising a plurality of differential delay lines each comprising a long optical fiber ('12B' Fig. 1-2 or '13B' in Fig. 1 (line 12B has longer effective optical path length than '12C')); plurality of phase actuated switchers connecting

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said plurality of differential delay lines ('13' Fig. 1; Fig. 3); wherein said phase actuated switchers are configured to switch an optical signal into long fiber or short fiber (abstract);

wherein said long fiber and said short fiber are connected between two of said phase actuated switchers (Fig. 1);

wherein said plurality of phase actuated switchers connect said plurality of differential delay lines in pairs between an input and an output of the optical delay line (Fig. 1);

wherein said plurality of phase actuated switchers connect said plurality of differential delay lines so that a delay between an input and an output of the optical delay line is the sum of the delays of the plurality of differential delay lines (abstract);

wherein said phase actuated switchers comprise a fiber coupler connected to at least one of said plurality of optical fiber differential delay lines (Fig. 3); and a light phase adjustment device connected to said fiber coupler ('34' Fig. 3).

It is respectfully noted that pending claims of the present application contain "functional language" limitations (e.g. at least claims 3-5, 8, 15-16, etc.), wherein an "apparatus" claim is further limited by functions performed by the claimed apparatus (i.e. "a short optical fiber that delays an input signal by... a long optical fiber delays the input signal by...", "...said variable part allows digitally controlling a delay over the range...", etc).

As stated in MPEP §2114, "[w]hile features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). A claim containing "a recitation with respect to the

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manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As such, while the functional language limitations are not ignored, such limitations are not given patentable weight, and the claimed limitations are anticipated if a prior art apparatus is capable of performing the claimed function. MPEP §2114.

Since the disclosed device of Madsen is fully capable of performing the functions claimed and recited in the instant application, the claim rejection based on Madsen is proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sung H. Pak
Primary Patent Examiner
Art Unit 2874